Claims

What is claimed is:

1   1.   A method for implementing a pointer and stake model for
2   frame alteration code in a network processor comprising the steps of:
3   providing a current pointer and a stake for a packet selected for
4   transmit;
5   maintaining said current pointer for tracking a current position for
6   frame alteration operations in the packet; and
7   maintaining said stake for tracking a start of a current header for
8   frame alteration operations in the packet.

1   2.   A method for implementing a pointer and stake model for
2   frame alteration code as recited in claim 1 includes the steps of providing
3   frame alteration code instructions to specify an offset from said current
4   pointer.

1   3.   A method for implementing a pointer and stake model for
2   frame alteration code as recited in claim 2 wherein said offset is encoded as
3   a 4-bit value for a specified byte 0 to 15 from said current pointer.

1   4.   A method for implementing a pointer and stake model for
2   frame alteration code as recited in claim 1 includes the steps of providing
3   advance pointer instructions allowing said current pointer and said stake to
4   be advanced an arbitrary number of bytes into the packet.

1   5.   A method for implementing a pointer and stake model for
2   frame alteration code as recited in claim 1 includes the steps of providing an
3   auto-advance feature of frame alteration code instructions to advance said
4   current pointer.

1   6.   A method for implementing a pointer and stake model for
2   frame alteration code as recited in claim 1 includes the steps of providing an
3   advance and set stake instruction at the end of a specified frame alteration
4   sequence to advance said current pointer and said stake to the start of a
5   next packet header.

1   7.   A method for implementing a pointer and stake model for
2   frame alteration code as recited in claim 1 includes the steps of utilizing
3   hardware to set said current pointer and said stake to a start of a new packet
4   selected for transmit.

1   8.   Apparatus for implementing a pointer and stake model for
2   frame alteration code in a network processor comprising:
3   a current pointer maintained for tracking a current position for frame
4   alteration operations in the packet;
5   a stake maintained for tracking a start of a current header for frame
6   alteration operations in the packet;
7   said current pointer and said stake being set to a start of a packet
8   selected for transmit;
9   advance pointer instructions for allowing said current pointer and said
10   stake to be advanced an arbitrary number of bytes into the packet.

1   9.   Apparatus for implementing a pointer and stake model for
2   frame alteration code as recited in claim 8 includes an auto-advance feature
3   of frame alteration code instructions to advance said current pointer.

1   10.   Apparatus for implementing a pointer and stake model for
2   frame alteration code as recited in claim 8 includes an advance and set
3   stake instruction for advancing said current pointer and said stake to a start
4   of a next packet header.

1   11.   Apparatus for implementing a pointer and stake model for
2   frame alteration code as recited in claim 8 wherein frame alteration code
3   instructions include an offset specified from said current pointer.

1   12.   A computer program product for implementing a pointer and
2   stake model for frame alteration code in a network processor system, said
3   computer program product including a plurality of computer executable
4   instructions stored on a computer readable medium, wherein said
5   instructions, when executed by the network processor system, cause the
6   network processor system to perform the steps of:
7   providing a current pointer and a stake for a packet selected for
8   transmit;
9   maintaining said current pointer for tracking a current position for
10   frame alteration operations in the packet; and
11   maintaining said stake for tracking a start of a current header for
12   frame alteration operations in the packet.

1   13.   A computer program product for implementing a pointer and
2   stake model for frame alteration code as recited in claim 12 includes the
3   steps of providing frame alteration code instructions having an offset
4   specified from said current pointer.

1   14.   A computer program product for implementing a pointer and
2   stake model for frame alteration code as recited in claim 13 includes the
3   steps of encoding said offset as a 4-bit value for a specified byte 0 to 15
4   from said current pointer.

1   15.   A computer program product for implementing a pointer and
2   stake model for frame alteration code as recited in claim 12 includes the
3   steps of providing advance pointer instructions allowing said current pointer
4   and said stake to be advanced an arbitrary number of bytes into the packet.

1   16.   A computer program product for implementing a pointer and
2   stake model for frame alteration code as recited in claim 12 includes the
3   steps of providing an auto-advance feature of frame alteration code
4   instructions to advance said current pointer.

1   17.   A computer program product for implementing a pointer and
2   stake model for frame alteration code as recited in claim 12 includes the
3   steps of providing an advance and set stake instruction at the end of a
4   specified frame alteration sequence to advance said current pointer and said
5   stake to the start of a next packet header.

1   18.   A computer program product for implementing a pointer and
2   stake model for frame alteration code as recited in claim 12 includes the
3   steps of utilizing hardware to set said current pointer and said stake to a start
4   of a new packet selected for transmit.